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FISH & RICHARDSON PC			TORRES VELAZQUEZ, NORCA LIZ	
225 FRANKLIN ST			ART UNIT	PAPER NUMBER
BOSTON, MA 02110			1771	

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/624,660

**Applicant(s)**

ROCK ET AL.

**Examiner**

Norca L. Torres-Velazquez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on June 28, 2004 (Brief on Appeal).  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 and 10-32 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-8 and 10-32 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

1. In view of the appeal brief filed on June 28, 2004, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

***Response to Arguments***

2. Applicant's arguments with respect to claim 1-8 and 10-18 have been considered but are moot in view of the new ground(s) of rejection.

a. Applicants argue that both Fujiwara and Toshio teach fabrics where the refractory particles are held in close proximity to the wearer's skin.

It is noted that while FUJIWARA is a very thin stocking fabric where the entire fabric body is in close proximity to the skin, the reference does provide the teaching of using such refractory particles for insulation purposes and further teaches incorporating the particles into the fiber by mixing these in the synthetic fiber. The primary reference to LUMB et al. does provide the present structure that includes the increased surface area in the inner fabric layer produced by a raising process and the Examiner is incorporating

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the refractory particles into such layer with the purpose of further enhancing the insulation properties of the fibers/yarns of LUMB et al.'s fabric. The present office action further combines the teachings of TOSHIO in the rejection. Contrary to Applicants assertion, TOSHIO does teach wearing the hair tips with the inorganic particles of the pile yarns placing the hair tip toward the side opposite to the human body such that the human body is effectively kept warm. Therefore, the present rejection incorporates the teachings of FUJIWARA to provide for the construction of energy-storing fibers and TOSHIO's to provide motivation for using such material away from the wearer's skin.

It is further noted, that the claims do not preclude the inclusion of such refractory in the yarns of the outer layer of the present invention.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. Claims 20-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 claims an improper Markush group. It should read: "... a metal selected from the group consisting of aluminum and copper". Claims 21-32, dependent on claim 20 are also rendered indefinite.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 19-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over LUMB et al. (US 5,312,667) in view of JONNES (US 4,032,681).

LUMB et al. discloses a composite textile fabric for moving moisture away from the skin. It includes a first fabric layer (inner layer) comprising either a polyester or nylon material which has been rendered hydrophilic and a second fabric layer comprising at least 25% by weight of a moisture absorbent material such as cotton. The first fabric layer and the second fabric layer (outer layer) are formed concurrently by knitting a plaited construction. (Abstract) The reference also teaches the use of other moisture absorbent materials such as synthetics (such as Hydrofil, manufactured by Allied Signal, Inc.) (Refer to Col. 3, lines 10-13) The reference further teaches that the surface of the material in the first fabric layer is raised. (Column 1, line 40). LUMB et al. also teaches that the composite textile fabric is used in garments, including sweatshirts, sweat pants, underwear, bathrobes, and various types of exercise clothing. (Column 1, lines 50-53)

The composite fabric may be constructed as a warp or weft knit, such as a two-end fleece, three-end fleece, terry with regular plaiting, double terry, double needle raschel and tricot. (Column 2, lines 67-68 through Column 3, lines 1-2) The reference teaches the use of spun yarns. (Col. 3, line 9; and Examples)

LUMB et al. further teach that the surface of the first fabric layer is raised by napping. The polyester or nylon layer is either round or modified cross-section, 0.3 to 6.0 denier. (Column 3, lines 30-35). The reference discloses that the significance of the plaited fabric construction is that this feature helps to create a substantial moisture concentration gradient between the surface of the raised polyester or nylon layer (which quickly transports water from the skin) and the cotton layer (which absorbs the water from the first layer and from which the water is evaporated. (Column 1, lines 62-68)

However, LUMB et al. fails to teach treating the inner fabric layer by metal vapor deposition to provide a metal vapor deposit thereon.

JONNES's invention provides a "breathable" reflective fabric, which is useful in clothing to provide relief from heat stress, particularly in environments subject to a source of radiation that is hotter than the ambient air temperature. (Col. 1, lines 5-9) JONNES teaches a reflective fabric comprising a base fabric covered with a thin reflective layer. (Abstract) The reference teaches the use of knit constructions. (Col. 4, lines 17) And also teaches the use of vapor-deposition (Col. 4, lines 11-13), to deposit materials such as aluminum, copper and alloys of copper. (Col. 2, lines 63-64) The reference further teaches that the thin reflective layer in the fabric has substantially no mechanical rigidity, and the result is that it leaves a base garment fabric in a drapable condition useful in the preparation of comfortable garments. (Col. 3, lines 59-63)

Since both references are directed to breathable fabrics with insulation properties, the purpose disclosed by JONNES would have been recognized in the pertinent art of LUMB et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the composite textile fabric of LUMB et al. and provide with a

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thin reflective layer by vapor deposition in the inner layer with the motivation of reflecting heat back to the body of the user while providing a breathable fabric as taught by JONNES above.

It is further noted that JONNES reflective layer is used in application which require keeping the heat away from the body of the user of the garment, however, it is the Examiner's position that the reference does provide the teaching of using this type of reflective layer for insulation and the use of it in the inner layer of the composite fabric of LUMB et al. will provide also insulation to the user by reflecting the heat back to the user's body.

7. Claims 1-8 and 10-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over LUMB et al. (US 5312667) in view of FUJIWARA (Abstract Japanese Patent 09-087901A) and TOSHIO et al. (JP 02-182968 Abstract)

LUMB et al. discloses a composite textile fabric for moving moisture away from the skin. It includes a first fabric layer (inner layer) comprising either a polyester or nylon material which has been rendered hydrophilic and a second fabric layer comprising at least 25% by weight of a moisture absorbent material such as cotton. The first fabric layer and the second fabric layer (outer layer) are formed concurrently by knitting a plaited construction. (Abstract) The reference also teaches the use of other moisture absorbent materials such as synthetics (such as Hydrofil, manufactured by Allied Signal, Inc.) (Refer to Col. 3, lines 10-13) The reference further teaches that the surface of the material in the first fabric layer is raised. (Column 1, line 40). LUMB et al. also teaches that the composite textile fabric is used in garments, including sweatshirts, sweat pants, underwear, bathrobes, and various types of exercise clothing. (Column 1, lines 50-53)

The composite fabric may be constructed as a warp or weft knit, such as a two-end fleece, three-end fleece, terry with regular plaiting, double terry, double needle raschel and tricot. (Column 2, lines 67-68 through Column 3, lines 1-2) The reference teaches the use of spun yarns. (Col. 3, line 9; and Examples)

LUMB et al. further teach that the surface of the first fabric layer is raised by napping. The polyester or nylon layer is either round or modified cross-section, 0.3 to 6.0 denier. (Column 3, lines 30-35). The reference discloses that the significance of the plaited fabric construction is that this feature helps to create a substantial moisture concentration gradient between the surface of the raised polyester or nylon layer (which quickly transports water from the skin) and the cotton layer (which absorbs the water from the first layer and from which the water is evaporated. (Column 1, lines 62-68)

However, the reference fails to teach the use of particles of a refractory compound embedded within the yarn fibers of the inner fabric layer.

FUJIWARA et al. discloses a stocking constituted by a synthetic fiber containing a substance having a heat storing and heat insulating effects by absorbing the visible ray of the sunlight and generating heat through an energy conversion, having the improved heat insulating effect, and excellent in fashionable property. The reference further teaches that the stockings are constituted by a synthetic fiber such as nylon, polyester and an acrylic fiber containing a substance such as zirconium carbide. The reference also teaches the use of metal oxides, such as zirconium oxide. The reference also teaches that the fiber of their invention also has the effect of reflecting the far infrared rays generated from a human body, and it carries out thermal conversion and not only keeps it warm, but it can acquire a double heat insulation effect. The



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reference teaches that the solar energy-storing thermal fiber is prepared by mixing in synthetic fiber a substance that absorbs energy such as zirconium oxide (Refer to [0007-0008]).

TOSHIO et al. teaches a knit fabric having excellent heat-insulation and comfortableness by sufficiently opening the fiber tip parts of a pile fabric and uniformly and firmly attaching a binder containing far infrared radiation inorganic particles. (Abstract) TOSHIO teaches the use of materials such as zirconium oxide. (Page 2 of translation) The reference also teaches wearing the hair tips with the inorganic particles of the pile yarns placing the hair tip toward the side opposite to the human body, the human body is effectively kept warm. Also, since moisture such as sweat being dispersed from the human body surface permeates into the hydrophobic binder part and is absorbed in the moisture-absorbing fiber part of the deep pile part, the part in contact with the skin has a very good sense of refreshing. (Pages 13-14 of translation)

Since the references are directed to insulating fabrics, the purpose disclosed by FUJIWARA et al. and TOSHIO would have been recognized in the pertinent art of LUMB et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the composite textile fabric and provide it with fibers with particles of zirconium carbide with the motivation of providing the fabric with improved heat insulation effect as disclosed by FUJIWARA et al. (Abstract) And further to wear the refractory particles away from the human body to keep the human body warm while dispersing moisture from the body and providing the skin with a very good sense of refreshing as disclosed by TOSHIO (Pages 13-14 of translation).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Norca L. Torres-Velazquez whose telephone number is 571-272-1484. The examiner can normally be reached on Monday-Thursday 8:00-4:00 pm. If attempts to reach the examiner by telephone

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are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Norca L. Torres-Velazquez  
Examiner  
Art Unit 1771

September 19, 2004



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